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Inhibitory Effects of *Aloe Vera* Gel Aqueous Extract and *L. casei* Against *E. coli* in Yoghurt

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ABSTRACT

Chemical preservatives are usually used to reduce or eliminate pathogenic or spoilage microorganisms, So many researches have been done to substitute the chemicals with naturally occurring compounds, especially plant essential oils. In this study the growth and survival of *E.coli* as a pathogen agent were investigated under the synergistic effects of simultaneous presence of *Aloe Vera* gel aqueous extract and *Lactobacillus casei.* For this purpose, an amount of 10^8-10^9 cfu/ml of *L. casei*, 10^3 CFU/ml *E.coli*, and two different concentrations of *Aloe Vera* gel aqueous extract (5 and 10%) were added to yoghurt. The samples were kept for 10 days in 4°C and the survival of *E.coli* was evaluated. The presence *E. coli* was determined by culture in selective media and the minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) of Aloe Vera gel aqueous extract against *E.coli* was investigated by Micro-well dilution assay. The MIC and MBC values ranged 20% and 40%. The highest antibacterial activity was seen at the end of the storage period and in the samples containing 10% extract (2.33±0.24 $\log_{10}$ cfu/g). *E. coli* count in samples containing extract and in probiotic yogurt were significantly decreased in comparison with the control group at the end of storage period. however, there was no significant difference in *E. coli* count between probiotic and non-probiotic yogurt containing extract and According to the results of this study *L.casei* and *Aloe vera* gel aqueous extract could be used as natural preservative agents in the dairy products.

Key words: Aloe Vera gel, Aqueous extract, Probiotic Yoghurt, E.coli.